

# Trash Town



## Objective

To teach students about the costs involved in waste management.



## Activity Description

Students will read the summary information about Trash Town and complete math problems to assess the cost of disposal and recycling in Trash Town.



## Materials Needed

- One copy of *Trash Town* worksheet per student
- One pencil per student
- One calculator per student (optional)



## Key Vocabulary Words

Landfill  
Tipping fee  
Recycle  
Disposal



## Duration

1 hour



## Skills Used

Reading  
Computation  
Problem solving



math



social  
studies



## Activity

**Step 1:** Photocopy and distribute the *Trash Town* worksheet to each student. Introduce the following concepts to your class (refer to the Teacher Fact Sheet titled *Solid Waste* on page 41 for more information):

- It costs us money to dispose of our garbage. The more garbage we generate, the more money we pay for disposal.
- Landfills charge a fee for accepting trash (tipping fee).
- We can save money by recycling, composting, reusing, or source reducing instead of throwing out garbage.
- We can earn money by recycling because recycled materials can be sold to manufacturers.

## The Economics of Trash

- **Landfill Tipping Fee**—Communities that want to dispose of their waste in a landfill must pay the landfill owners a fee, based on the number of tons of waste they discard.
- **Recyclables Market**—Recycling can be profitable! Communities that collect recyclable items can sell those items to manufacturers for reuse. Communities can check the recyclables marketplace to find out the current, per-ton prices associated with different recyclable materials.

**Step 2:** Pass out calculators to each student. Ask the students to carefully read the *Trash Town* worksheet and complete the math problems related to the town's disposal and recycling practices. (Teachers can decide whether this worksheet should be completed in groups or individually.)



## Journal Activity

Ask students to pretend that they are the mayor of Trash Town. If the residents of their town complained about the price of garbage disposal, what would they tell them?



## Assessment

1. Collect the *Trash Town* worksheets and evaluate the computations and answers.
2. Ask students to identify the most expensive element of garbage disposal. Ask them whether it's more costly to recycle and reuse or to throw everything away.
3. Ask students to list some of the cost considerations involved in garbage disposal.



## Enrichment

1. Conduct a "Pay-As-You-Throw" (PAYT) experiment in the classroom or lunchroom. Hand out the same amount of fake money to each

student and charge them based on the amount of trash they throw away from their lunch. (One paper bag=\$100, one plastic bag=\$200, one aluminum can=\$500, etc.) Keep this up for a few days and see if the students can bring in lunches that are less costly the next day (less wasteful). See who ends up with the most fake money at the end of the week and give that person a prize for being "waste wise." You can also explain to students that more than 4,000 communities across the country have PAYT programs where citizens are charged based on the amount of garbage they throw away.

2. Contact your local solid waste agency to obtain actual waste statistics and costs for your own community. Have students use these numbers to find out how much money the community spends on garbage disposal per day, per week, or per year.
3. Have students devise a plan for helping the residents of Trash Town save more money and protect the environment. Ask the students to write a speech or article explaining their new plan to the residents of Trash Town—what needs to be recycled and how, how the residents will benefit, and how the environment will benefit.

### Answer Key

1. How many tons of garbage does the entire Trash Town generate per day? 110 tons  
Per year? 40,150 tons
2. How much does it cost for Trash Town to throw all of its garbage into a landfill each year?  
\$1,606,000
3. If Trash Town started a recycling program and recycled 30 percent of its garbage each year, how many tons of recyclables would be collected?  
12,045 tons

4. If Trash Town recycled 30 percent of its garbage per year, how many tons of trash would still be sent to the landfill? 28,105 tons
5. How much money (in less tipping fees) would Trash Town save from recycling 30 percent of its garbage per year? \$481,000
6. How much money would Trash Town earn from recycling 30 percent of its garbage per year?  
\$120,450
7. How much could Trash Town earn if it started recycling 50 percent of its garbage per year?  
\$200,750  
What about 60 percent? \$240,900

## Welcome to **Trash Town**



Greetings! I'm Ruby Rubbish, the mayor of Trash Town, and I want to thank you for visiting our community. Are you good with numbers? Do you know what's best for the environment? We need your help! The residents of Trash

Town are spending lots of money to haul and dump their garbage in the local landfill. Our landfill is filling up fast, and we worry about what all this trash is doing to our environment. Plus, we can't afford to keep paying so

much for our garbage disposal. We've heard that other towns are helping to protect the environment by recycling and reusing items instead of throwing them away. We've also heard that some communities can make money by recycling. Unfortunately, the Trash Town garbage specialist is on vacation and we need someone to answer all of our questions about garbage disposal immediately. If I give you all of the information, can you help? If you can figure out the solutions to our questions on the next page, you'll be the hero of Trash Town!!

### **Trash Town Trivia**

Population: 50,000

Garbage generated by each Trash Town resident per day: 4.4 pounds

Tipping fee for garbage dumped at local landfill: \$40/ton

Money earned for collecting recyclables: \$10/ton

#### **Other important information**

1 ton = 2,000 pounds

1 year = 365 days



**Trash Town**

# Student Handout

Name: \_\_\_\_\_



1. How many tons of garbage does the entire Trash Town generate per day?

Per year? \_\_\_\_\_

2. How much does it cost for Trash Town to throw all of its garbage into a landfill each year?

3. If Trash Town started a recycling program and recycled 30 percent of its garbage each year, how many tons of recyclables would be collected?

4. If Trash Town recycled 30 percent of its garbage per year, how many tons of trash would still be sent to the landfill? \_\_\_\_\_

5. How much money (in less tipping fees) would Trash Town save from recycling 30 percent of its garbage per year? \_\_\_\_\_

6. How much money would Trash Town earn from recycling 30 percent of its garbage per year? \_\_\_\_\_

7. How much could Trash Town earn if it started recycling 50 percent of its garbage per year? \_\_\_\_\_

What about 60 percent? \_\_\_\_\_

## CHALLENGE CORNER

Can you face the Trash Town challenge? The following information will help you solve the word problems below.

Different types of recycled materials earn different amounts of money in the recyclables marketplace. For example:

Plastic bottles: \$15/ton

Cardboard: \$40/ton

Magazines: \$5/ton

Steel: \$40/ton

Aluminum cans: \$40/ton

Newspaper: \$15/ton

Glass: \$15/ton

1. How much money would Trash Town earn for recycling 250 tons of newspaper and 30 tons of steel per year? \_\_\_\_\_

2. If Trash Town recycles 20 percent of its total annual garbage and 15 percent of that garbage is aluminum cans and 5 percent is magazines, how much money will it earn in total? \_\_\_\_\_

3. How many pounds of cardboard would Trash Town have to recycle in order to earn more than \$39,000 per year? \_\_\_\_\_